

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION**

**RESPONSE TO WRITTEN COMMENTS**

**ON THE REISSUANCE OF WASTE DISCHARGE REQUIREMENTS FOR:**

Shell Oil Products US and Equilon Enterprises LLC  
Shell Martinez Refinery, Contra Costa County  
NPDES Permit No. CA0005789

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**I. U.S. EPA – September 13, 2006**

**II. Shell Oil Products US – September 14, 2006**

**III. Communities for a Better Environment – September 14, 2006**

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*Note: The format of this staff response begins with a brief introduction of the party's comments, followed with staff's response. Interested persons should refer to the original letters to ascertain the full substance and context of each comment.*

**I. U.S. EPA – September 13, 2006**

U.S. EPA Comment 1

*U.S. EPA indicates that the proposed chronic toxicity limits in the draft permit of 20 TU<sub>c</sub> (as a single sample maximum), and 10 TU<sub>c</sub> (as a 3-sample median) do not appear to be consistent with the Basin Plan or U.S. EPA's recommended approach for setting water quality based effluent limits for chronic toxicity. U.S. EPA does not understand how the proposed maximum daily limit of 20 TU<sub>c</sub>, an effluent level twice as toxic as an effluent containing 10 TU<sub>c</sub> is consistent with: (1) an applicable overall dilution credit of 10:1 for this discharge, (2) the dilution comparable to the dilution allowed for numeric chemical objectives, and (3) U.S. EPA's recommended CCC for chronic toxicity, which is set as a 4-day average of 1.0 TU<sub>c</sub> to the most sensitive of at least three test species. Further, U.S. EPA points out that its national guidance recommends that permitting authorities establish chronic toxicity effluent limits using: the chronic toxicity CCC of 1.0 TU<sub>c</sub>, a dilution allowance where authorized by the permitting authority, and the statistical procedures for calculating effluent limits described in Box 5-2 and Tables 5-1 and 5-2 of the Technical Support Document. In this case (using an assumed coefficient of variation of 0.6), the maximum daily an average monthly limits would be 14.95 TU<sub>c</sub> and 7.45 TU<sub>c</sub>, respectively. Alternatively, U.S. EPA believes that it would be reasonable for the Water Board, based on the Basin Plan and best professional judgment, to establish a maximum daily limit of 10 TU<sub>c</sub> for this discharge, as is customarily done for direct ocean dischargers in California.*

Response 1

We have revised the draft permit to specify a maximum daily limit of 10 TU<sub>c</sub> for chronic toxicity, and have revised the Fact Sheet accordingly. It is worth noting that the originally proposed limits of 10 and 20 TU<sub>c</sub> were based on previous permits, which in turn were based directly on Basin Plan policy adopted by the Board in a 1991 Amendment. A numeric 1 TU<sub>c</sub> objective was also established in that 1991 Basin Plan. In response to

discharger petitions and challenges on this policy and other issues, the State Water Board remanded most permits implementing numeric chronic toxicity provisions back to the Board, and set aside the 1991 Basin Plan Amendments. Subsequent to this, the Board adopted the effluent limits as triggers for deepwater dischargers.

As U.S. EPA points out, the Basin Plan does require that “development of these limits ... [may include] allowing credit for dilution comparable to those allowed for numerical chemical-specific objectives....” As described in the Fact Sheet, a 10:1 dilution credit is proposed.

Applying the Basin Plan’s narrative toxicity objective of “...no chronic toxicity in ambient waters” to be equivalent to 1 TU<sub>c</sub>, and the steady state mass balance equation yields the following:

$$C_e = C_o + D(C_o - C_b)$$

where: C<sub>e</sub> = the effluent limitation, C<sub>o</sub> = the water quality criteria- 1.0 TU<sub>c</sub>, D = dilution credit (D=9 for 10:1), and C<sub>b</sub> = background- 0 TU<sub>c</sub>

$$C_e = 1.0 + 9(1-0)$$

$$C_e = 10 \text{ TU}_c$$

While it seems inconsistent to impose a more stringent effluent limit of 10 TU<sub>c</sub> as compared to the 10 and 20 TU<sub>c</sub> triggers for municipal treatment facilities, Shell’s discharge data from the past five years show that it can comply with a limit set at 10 TU<sub>c</sub> using Gulf Shrimp as the test species. Therefore, this limit is appropriate, in part, since the Revised Tentative Order retains this species as the test organism for chronic toxicity. If the Board revises chronic toxicity requirements relative to the appropriate test species, it may need to reevaluate existing permit requirements.

In order to be consistent with our standard requirements that a discharger accelerate monitoring if it finds itself in noncompliance with effluent limitations, we also revised accelerated monitoring requirements for chronic toxicity. Specifically, we modified the Tentative Order to require Shell to accelerate chronic toxicity monitoring to monthly if a single sample maximum exceeds 10 TU<sub>c</sub> (instead of 20 TU<sub>c</sub>), and eliminated the requirement for accelerated monitoring if the three-sample median exceeds 10 TU<sub>c</sub> since this would be redundant. We made these changes on pages 28 (Provision 9) and E-8 (Self-Monitoring Program) of the Tentative Order.

## **II. Shell Oil Products US – September 14, 2006**

### Shell Comment 1

*Shell requests that the Water Board provide a compliance schedule for nickel since it believes the final average monthly effluent limitation (AMEL) of 43 µg/L may be infeasible to meet over the short-term. To support its position, Shell provides a graph that shows the variability of effluent nickel concentrations over the past 13 years. These nickel concentrations demonstrate 100% compliance with Shell’s existing interim limit of*

*65 µg/L; however, these values do not demonstrate consistent compliance with the proposed AMEL of 43 µg/L. Further, Shell explains that its refinery has numerous sources of nickel, and that it must carefully monitor and manage source control systems to ensure compliance with its permit requirements. In order to make changes to process unit equipment, process chemicals, and monitoring devices, Shell explains that it must conduct a rigorous review process to satisfy Occupational Safety and Health and Process Safety Management regulations. Therefore, to allow Shell adequate time to implement changes to its nickel control systems, it requests that Water Board provide a compliance schedule of at least one-year from the effective date of the reissued NPDES Permit. During this time period, Shell requests that the Water Board maintain the existing nickel limit of 65 µg/L as an interim limit.*

#### Response 1

We are denying Shell's request. While Shell has demonstrated that nickel concentrations have episodically spiked over the past 13 years, we do not believe that this is sufficient grounds for granting a compliance schedule. This is because the Board's statistical analysis of monitoring data from February 2003 through February 2006 (described in the Fact Sheet of the Tentative Order, page F-35) shows that the AMEL of 43 µg/L for nickel is achievable (this period includes one spike where the maximum daily value exceeded 43 µg/L). That said, we are encouraged that Shell has source control options that it will implement to further reduce nickel discharges to San Francisco Bay.

#### Shell Comment 2

*Shell indicates that it is concerned with the requirements of Provision 13 of the Tentative Order, which require that Shell submit a schedule that documents how it will meet final water quality based effluent limits for mercury, selenium, cyanide, and PCBs, in the event that TMDL(s) or SSO(s) are not developed for these pollutants. Shell explains that the need to invest significant sums on new wastewater treatment technologies and process units that may only be necessary for a few months in the event that Total Maximum Daily Loads ( TMDLs) or Site-Specific Objectives (SSOs) remain undeveloped is not the best use of resources. Given the amount of time it has taken to develop a mercury TMDL, Shell believes that it may be unrealistic for TMDLs and SSO(s) to be completed by 2010 for the other pollutants described above. While Shell acknowledges that the Board is currently bound by the existing Basin Plan and statewide policy documents, it requests that the Board work with Shell to consider and develop a policy, and/or regulatory or legislative amendments that would allow the Board to extend the proposed compliance schedules, until all TMDL(s) and SSO(s) are developed and approved.*

#### Response 2

We understand Shell's concern with the requirements of this provision. As Shell recognizes, we are required by Section 2.2.1 of the SIP and 40 CFR Part 122.47(a)(3) to establish interim requirements and dates to ensure that final limits are met. While we believe that TMDLs will address mercury, selenium, and PCBs, and that a SSO will address cyanide, the permit must have an alternative mechanism for how limits are met for these pollutants should TMDLs and/or SSOs remain unadopted.

On Shell's request for the Board to work on extending the permissible time for compliance schedules, our current level of staff and U.S. EPA's directive to expedite reissuance of expired permits would not allow us to provide much assistance. We encourage Shell to work with U.S. EPA or other discharger associations if it wishes to pursue extending compliance time frames. That said, we are committed to working with Shell to ensure that these requirements are implemented in a reasonable manner.

### **III. Communities for a Better Environment (CBE) – September 14, 2006**

#### *CBE Comment 1*

*CBE points out that the refinery is discharging PCBs, mercury, cyanide, selenium, and dioxins into Carquinez Strait at levels that cause or contribute to violations of the Basin Plan's water quality objectives. Additionally, CBE indicates that these toxins have the potential to harm the health of Bay's wildlife, and of fishermen and hunters who hunt and eat fish and wildlife from the Bay and their families. Further, CBE indicates that subsistence anglers and their families are exposed to dangerously high levels of mercury, dioxins, selenium, and PCBs. Since the majority of subsistence anglers are people of color, CBE indicates that the refinery's discharge contributes to environmental injustice.*

#### *Response 1*

The Board is developing TMDLs for PCBs, mercury, selenium, and dioxins, to address any problems associated with current and historic discharges of these pollutants to Carquinez Strait. These TMDLs will be designed to ensure compliance with water quality in the most reasonable manner possible. For cyanide, an SSO is in the works to adjust the standard to fit site-specific factors.

On the issue of environmental injustice, loadings of mercury, selenium, PCBs, and dioxins from Shell's wastewater treatment plant to Carquinez Strait are small relative to other sources. As such, even if Shell ceased discharge to Carquinez Strait, this water body would remain in non-attainment until historic and other more significant sources are addressed through TMDLs. Moreover, on selenium, in response to the Board's Cease and Desist Order, this refinery implemented treated units in 1997 that reduced its selenium discharges by more than half.

#### *CBE Comment 2*

*CBE points out that under the Clean Water Act (CWA), Dischargers must comply with water quality based effluent limits (WQBELs) immediately. CBE indicates that Congress mandated that WQBELs in NPDES permits be set at a level necessary to attain water quality standards regardless of economic and technological restraints. To bring about the development and implementation of new treatment and other pollution reduction methods necessary to attain clean water, CBE indicates that Congress intended the CWA to be technology-forcing. CBE indicates that Congress mandated that WQBELs designed to assure attainment with water quality standards by July 1, 1977. Accordingly, CBE does not believe that EPA or the State may authorize extensions beyond this deadline in NPDES Permits. CBE indicates that the July 1, 1977 deadline applies even when relevant water quality standards are established after this date. Further, CBE points out*

*that Congress required states to continue updating water quality standards after the 1977 statutory deadline, but after that date, made no allowances for compliance schedules. Finally, CBE concludes that a compliance schedule that extends the duty to comply with WQBELs beyond the July 1, 1977 statutory deadline would amount to a less stringent effluent limit than required by the CWA.*

#### Response 2

We disagree. The July 1, 1977, statutory deadline applies to those water quality standards in effect before July 1, 1977. For such pollutants, we agree that full and immediate compliance is mandatory. For those water quality standards adopted or revised after that date, such as cyanide, mercury, selenium, PCBs and dioxin permits may grant compliance schedules to achieve compliance with water quality standards if the State has authorized a compliance schedule in its Basin Plan or a Policy. See *In the Matter of Star-Kist Caribe, Inc.*, 3 E.A.D 172 (U.S. EPA Appeals Board 1990). Here, both the Basin Plan and SIP authorize compliance schedules.

#### CBE Comment 3

*CBE indicates that neither the State Implementation Policy (SIP) nor the California Toxics Rule (CTR) provide a legal basis for compliance schedules. CBE points out that U.S. EPA has established certain water quality standards, embodied in the CTR, which gave Regional Board the authority to issue compliance schedules until May 18, 2005. CBE indicates that U.S. EPA has not approved the authority to issue compliance schedules under certain portions of the SIP, which establishes an implementation program for certain pollutants in the CTR. U.S. EPA approved some of the SIP provisions, but declined to approve the provisions of the SIP that gave power to issue compliance schedules for impaired waterways (“the Held-over SIP Provisions”). The Held-over SIP Provisions authorized the issuance of compliance schedules that delayed the effective date of CTR-based WQBELs for up to 15 years from the effective date of the SIP to develop and adopt TMDLs. CBE concludes that in the more than five years since the State Board submitted the SIP to EPA for review and approval, EPA has never taken further action with respect to the Held-over SIP Provisions, and therefore, the Water Board is not entitled to issue compliance schedules based on these provisions.*

#### Response 3

We have not made changes in response to this comment because the Tentative Order proposes compliance schedules that are lawfully granted. The Tentative Order specifies schedules for mercury, cyanide, selenium, dioxins, and PCBs. As noted in the Fact Sheet of the Tentative Order, mercury and dioxins are based on Basin Plan objectives and cyanide and selenium are based on National Toxics Rule (NTR) criteria. The compliance schedules for these pollutants are based on the Basin Plan’s compliance schedule provision in Chapter 4 (the preamble to the NTR states that schedules of compliance for NTR criteria are not provided in the NTR but are available if authorized by State law). Only PCBs is based on criteria from the CTR. The compliance schedule for PCBs is based on the compliance schedule provisions of the SIP as approved by USEPA, not the CTR. The preamble of the CTR (31704) states,

“... EPA has chosen to promulgate the rule with a sunset provision.... However, if the State Board adopts, and the EPA approves, a statewide authorizing compliance schedule provision significantly prior to May 18, 2005, EPA will act to stay the authorizing compliance schedule provision in today’s rule.”

The USEPA approved the 5-year compliance schedule provisions of the SIP on May 18, 2000, with the effect that CTR section (e) was stayed and no longer in effect. SIP 2.1 allows that the schedule of compliance be up to 5 years from the date of permit reissuance, but in no case exceed 10 years from the effective date of the SIP. The effective date of the SIP for CTR criteria is the date of the USEPA approval letter, May 18, 2000. Thus, the compliance schedule for PCBs may extend up to May 18, 2010, because no compliance schedule for PCBs was previously granted for this discharger.

We agree that U.S. EPA never approved the 15-year compliance schedule to develop and adopt a TMDL; however, we disagree with the characterization that this disapproval means that compliance schedules are prohibited for impaired waterways. Nothing in U.S. EPA’s approval of the SIP makes an impaired/unimpaired distinction. Rather, U.S. EPA granted a blanket approval of the 5-year compliance schedule for all CTR pollutants, subject to the conditions that compliance schedules be granted only to existing dischargers, who make a showing that compliance is infeasible and who are required to comply with interim requirements. Additionally, compliance schedules are to be as short as practicable. In any event, the Tentative Order does not grant 15-year compliance schedules under the portion of the SIP not approved by U.S. EPA.

CBE Comment 4

*CBE indicates that adopting the Tentative Order’s compliance schedules would violate the spirit of the CWA and strip the public of its right to participate in the preservation of our waterways. Again, CBE point out that Congress specifically provided that NPDES Permits may contain compliance schedules until 1977 for dischargers like the Refinery, and that offering performance-based limit now, more than 25 years after Congress required their termination, simply ignores the plain language of the CWA. To relax NPDES permit limits, CBE indicates that the State would need to conduct a “Use Attainability Analysis” if curtailing pollution would require closing of a facility that would result in “substantial and widespread economic and social impact.” CBE points out that the Water Board has not undertaken a Use Attainability Analysis for the Refinery, and instead has proposed compliance schedules that (a) forego the Use Attainability Analyses, and (b) provide interim limits that are convenient for the Refinery. Additionally, CBE again points out that the compliance schedules in the Tentative Order rely on provisions of the SIP, which were never expressly approved by U.S. EPA, and on the CTR, whose authorization of such schedules ended last year. Since these compliance schedule authorizations are not valid under federal law, CBE indicates that the Water Board should require immediate compliance with WQBELs. In conclusion, CBE points out that the effect of the proposed compliance schedules for the Refinery would be to immunize dischargers from judicial enforcement actions that would protect waterways, and thus prevent agencies and citizens from having the tool of securing court enforceable orders directing dischargers to come into compliance with WQBELs.*

#### Response 4

We have not made changes in response to this comment because the Tentative Order proposes compliance schedules that are lawfully granted (please see responses 2 and 3). Additionally, we do not intend to conduct a Use Attainability Analysis for the Shell Refinery. This is because the purpose of a Use Attainability Analysis (described in 40 CFR Part 131.10) is to provide States with the opportunity to remove a designated use in a waterbody when it is not an existing use. However, in order to do so, a State must demonstrate that attaining the designated use is not feasible. In other words, a Use Attainability Analysis applies to waterbodies (i.e., San Pablo Bay) not discharge facilities.

On CBE's last point, the Tentative Order requires Shell to comply with WQBELs for selenium, mercury, cyanide, and PCBs by 2010, and for dioxins by 2011 because such compliance schedules are authorized under the SIP and Basin Plan. In our view, such compliance schedules do not immunize Shell from judicial enforcement actions; they simply provide Shell with a reasonable time-period to come into compliance with final limits.